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PATENT

Docket No.: 19603/2501 (CRF D-2375A)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Beer et al.)
Serial No. : 09/770,693)
Cnfrm. No. : 6816)
Filed : January 26, 2001)
For : OOMYCETE-RESISTANT)
TRANSGENIC PLANTS BY VIRTUE)
OF PATHOGEN-INDUCED)
EXPRESSION OF A HETEROLOGOUS)
HYPERSENSITIVE RESPONSE)
ELICITOR)

#10
4/30/02
Examiner:
M. IbrahimArt Unit:
1638**RECEIVED**

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TECH CENTER 1600/2900

RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the written office action dated March 22, 2002 in which a restriction requirement was imposed by the U.S. Patent and Trademark Office ("PTO"), applicants hereby elect the subject matter of Group I (i.e., claims 1, 5-27, 29-30, and 34-56), invention B (SEQ ID No: 3), with traverse upon the following grounds.

Firstly, restriction between Groups I and II (as well as III and IV) is improper.

It is the burden of the PTO to demonstrate that restriction among the claimed subject matter is appropriate. In the present case, the PTO has simply asserted that the inventions of Groups I and II are unrelated, because "the different inventions are not disclosed of (sic) capable of use together and they have different effects." The PTO's position, however, is lacking any evidence to support its conclusion.

There is no basis in the present application for concluding that that the invention of Group I is incapable of being used together with the invention of Group II. The invention of Group I relates to a chimeric gene which includes a coding sequence that encodes "a hypersensitive response elicitor protein or polypeptide" whereas the invention of Group II relates to a chimeric gene which includes a coding sequence that encodes a chimeric protein containing both "a secretion signal polypeptide" and "a hypersensitive response

elicitor protein or polypeptide". That a chimeric protein is expressed is abundantly clear from the description in the specification. Specific reference is made to the Examples, which describe the preparation of genetic constructs and transformation of plants using the same. Moreover, both the hypersensitive response elicitor protein or polypeptide and the chimeric protein are intended to have the same effect, namely imparting oomycete disease resistance to transgenic plants which express them. The basis for the PTO's conclusion, therefore, is not only unsupported but also unfounded.

The PTO has failed to properly define the relationship between the inventions of Groups I and II; they are properly characterized as a subcombination (Group I) and combination (Group II). To demonstrate distinctiveness between the subcombination and combination, the PTO must show: (1) that the combination as claimed does not require the particulars of the subcombination as claimed and (2) that the subcombination can be shown to have utility either by itself or in other and different relations. See MPEP § 806.05(c). The PTO has failed to show that either of these two requirements have been met, let alone both. Applicants submit that the PTO cannot make any such showing because, at a minimum, the first criteria cannot be satisfied. In this case, the combination recited in claims 2-4 depends from claim 1 and therefore requires the particulars of the subcombination of claim 1; the combination recited in claim 28 ultimately depends from claim 1 and therefore requires the particulars of the subcombination of claim 1; and the combination recited in claims 31-33 ultimately depends from claim 1 and therefore requires the particulars of the subcombination of claim 1. Thus, the PTO cannot possibly demonstrate that the combination as claimed does not require the particulars of the subcombination as claimed.

For these reasons, the restriction as between Groups I and II (as well as III and IV) is improper. Since applicants have elected the invention of Group I, the subject matter of Groups I and II should be examined together.

Secondly, restriction between inventions A-D and/or E-H is improper. The PTO states the appropriate test for determining whether the inventions are related (i.e., they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects), yet the PTO suggests that the various proteins or polypeptides of A-D and E-H have different effects. No basis is provided in making this assertion other than the fact that the proteins themselves are different. The PTO, however, is incorrect in making this unfounded and unsupported conclusion, because the proteins of

Groups A-D have the same function and effect, and the proteins of Groups E-H similarly have the same function and effect.

The subject matter of Groups A-D relates to various species of hypersensitive response elicitor proteins or polypeptides which are capable of use in the present invention. Applicants do not dispute that the subject matter of Groups A-D relates to different proteins; however, the invention of claim 1 is generic to all of these proteins. In fact, these and other hypersensitive response elicitor proteins or polypeptides are known to fall within an art recognized class which is characterized by the following characteristics: glycine rich, heat stable, hydrophilic, capable of inducing a hypersensitive response in tobacco after recombinant expression, susceptible to proteolysis, and lacking in cysteine. See U. Bonas, "Bacterial Home Goal by Harpins," Trends Microbiol. 2: 1-2 (1994)("Bonas I"), attached hereto at Exhibit 1; U. Bonas, "*hrp* Genes of Phytopathogenic Bacteria," Current Topics in Microbiology and Immunology 192: 79-98 (1994)("Bonas II"), attached hereto as Exhibit 2; and G. Preston, et. al., "The HrpZ Proteins of *Pseudomonas syringae* pvs. *syringae*, *glycinea*, and *tomato* are Encoded by an Operon Containing *Yersinia ysc* Homologs and Elicit the Hypersensitive Response in Tomato but not Soybean," MPMI 8(5): 717-32 (1995)("Preston"), attached hereto as Exhibit 3. Therefore, although the hypersensitive response elicitor proteins themselves may differ one from another, they share these fundamental characteristics which define their class. Moreover, they all share the same function and same effect when introduced into non-host plants, namely the elicitation of a hypersensitive response and ultimately systemic acquired resistance. Thus, the different hypersensitive response elicitor protein or polypeptides have the same function and effect. Because the PTO has failed to provide any evidentiary support for its position and the PTO's position is factually incorrect, its unfounded and unsupported assertion that the proteins have different effects provides no basis for restriction among Groups A-D.

Similarly, the subject matter of Groups E-H relates to various species of secretion signal proteins or polypeptides which are capable of use in the present invention. Applicants do not dispute that the subject matter of Groups E-H relates to different proteins; however, the invention of claim 2 is generic to all of these proteins as present in a chimeric protein. These secretion signals all possess the same function and effect, namely secretion of the proteins of which they are a part externally of the plant cell expressing the chimeric protein, which allows the hypersensitive response elicitor to function within the intracellular regions of plant tissue. Thus, the secretion signal proteins or polypeptides have the same

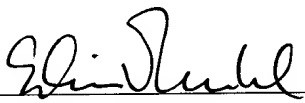
function and effect. Because the PTO has failed to provide any evidentiary support for its position and the PTO's position is factually incorrect, its unfounded and unsupported assertion that the proteins have different effects provides no basis for restriction among Groups E-H.

Thirdly, the PTO has also ignored the Manual of Patent Examining Procedure rules governing the handling of linking claims. Claim 1 (generic subcombination claim) is not limited to any one particular hypersensitive response elicitor protein or polypeptide. Claim 2 (generic combination claim) is not limited to any one particular secretion signal protein or polypeptide. As such, these claims are linking claims which link together the subject matter of Groups A-D and Groups E-H, respectively. According to MPEP § 809.03, claims to a genus which link together claims to species should specifically be designated as linking claims at the time the restriction is made. As linking claims, they also should not be associated with any one of the linked groups. MPEP § 814. Where linking claims are involved, allowance of a linking claim would provide for rejoinder of all linked claims to species. MPEP § 809.03.

In view of all of the foregoing, applicants submit that the restriction requirement should be withdrawn with respect to the invention of Groups I and II, Groups A-D, and Groups E-H. As a result, all of claims 1-56 should be examined together.

Respectfully submitted,

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